

CLAIMS

What is claimed is:

- 5 1. A method for controlling subscriber access in a network capable of establishing connections with a plurality of domains, comprising:
- receiving a communication from a subscriber using a first communication network
- coupled to at least one other communication network, said communication
- optionally including a domain identifier associated with a domain on said at least
- 10 one other communication network;
- determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said communication;
- authorizing subscriber access to said domain when said domain identifier is included
- 15 in said list.
2. The method of claim 1, further comprising terminating said communication when said domain identifier is not included in said list.
- 20 3. The method of claim 1 wherein said communication comprises a Point-to-Point Protocol (PPP) session.
4. The method of claim 3 wherein
- said PPP session comprises a tunneling session;
- 25 said determining further comprises assigning a tunnel ID; and

said PPP session is forwarded onto a tunnel associated with said tunnel ID when said subscriber is authorized to access said domain.

5 5. The method of claim 4 wherein said tunneling session comprises an L2TP session.

6. The method of claim 5 wherein said determining further comprises:

issuing an authorized domain list request including a virtual circuit identifier;

receiving an authorized domain list that includes authorized domains for said

10 identifier;

indicating said domain is unauthorized when said domain name is not in said domain

list;

indicating said domain is authorized when said domain name is in said domain list;

issuing a tunnel ID request including said domain name when said domain name is

15 authorized; and

receiving a tunnel ID.

7. The method of claim 6 wherein

said authorized domain list request is serviced by an AAA server; and

20 an AAA server services said tunnel ID request.

8. The method of claim 6 wherein said virtual circuit identifier comprises a VPI/VCI identifier.

9. The method of claim 5 wherein said determining further comprises:

issuing a tunnel ID request including said domain name and a virtual circuit

identifier; and

5 receiving a tunnel ID.

10. The method of claim 9 wherein an AAA server services said tunnel ID request.

11. The method of claim 9 wherein said virtual circuit identifier comprises a VPI/VCI

10 identifier.

12. The method of claim 5 wherein said determining further comprises:

performing a table lookup based on a virtual circuit identifier to obtain an authorized

domain list that includes authorized domains for said virtual circuit identifier;

15 indicating said domain is unauthorized when said domain name is not in said

authorized domain list;

indicating said domain is authorized when said domain name is in said authorized

domain list; and

performing a table lookup based on said domain name to obtain a tunnel ID when

20 said domain name is authorized.

13. The method of claim 12 wherein said virtual circuit identifier comprises a VPI/VCI

identifier.

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14. A program storage device readable by a machine, embodying a program of

instructions executable by the machine to perform a method to control subscriber

access in a network capable of establishing connections with a plurality of domains,
the method comprising:

receiving a communication from a subscriber using a first communication network

5 coupled to at least one other communication network, said communication
optionally including a domain identifier associated with a domain on said at least
one other communication network;

determining whether said subscriber is authorized to access said domain based upon
said domain identifier and a list of authorized domains for a virtual circuit used
10 to receive said communication;

authorizing subscriber access to said domain when said domain identifier is included
in said list.

15. The program storage device of claim 14, further comprising terminating said
15 communication when said domain identifier is not included in said list.

16. The program storage device of claim 14 wherein said communication comprises a
Point-to-Point Protocol (PPP) session.

20 17. The program storage device of claim 16 wherein
said PPP session comprises a tunneling session;
said determining further comprises assigning a tunnel ID; and
said PPP session is forwarded onto a tunnel associated with said tunnel ID when said
subscriber is authorized to access said domain.

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18. The program storage device of claim 17 wherein said tunneling session comprises an L2TP session.

5 19. The program storage device of claim 18 wherein said determining further comprises:
issuing an authorized domain list request including a virtual circuit identifier;
receiving an authorized domain list that includes authorized domains for said
identifier;
indicating said domain is unauthorized when said domain name is not in said domain
10 list;
indicating said domain is authorized when said domain name is in said domain list;
issuing a tunnel ID request including said domain name when said domain name is
authorized; and
receiving a tunnel ID.

15 20. The program storage device of claim 19 wherein
said authorized domain list request is serviced by an AAA server; and
an AAA server services said tunnel ID request.

20 21. The program storage device of claim 19 wherein said virtual circuit identifier
comprises a VPI/VCI identifier.

22. The program storage device of claim 18 wherein said determining further comprises:
issuing a tunnel ID request including said domain name and a virtual circuit
25 identifier; and
receiving a tunnel ID.

23. The program storage device of claim 22 wherein an AAA server services said tunnel ID request.

24. The program storage device of claim 22 wherein said virtual circuit identifier comprises a VPI/VCI identifier.

25. The program storage device of claim 18 wherein said determining further comprises:

performing a table lookup based on a virtual circuit identifier to obtain an authorized domain list that includes authorized domains for said virtual circuit identifier; indicating said domain is unauthorized when said domain name is not in said authorized domain list; indicating said domain is authorized when said domain name is in said authorized domain list; and performing a table lookup based on said domain name to obtain a tunnel ID when said domain name is authorized.

26. The program storage device of claim 25 wherein said virtual circuit identifier comprises a VPI/VCI identifier.

27. An apparatus for controlling subscriber access in a network capable of establishing connections with a plurality of domains, the apparatus comprising:
means for receiving a communication from a subscriber using a first communication network coupled to at least one other communication network, said communication optionally including a domain identifier associated with a domain on said at least one other communication network;

means for determining whether said subscriber is authorized to access said domain
based upon said domain identifier and a list of authorized domains for a virtual
circuit used to receive said communication;

5 means for authorizing subscriber access to said domain when said domain identifier is
included in said list.

28. The apparatus of claim 27, further comprising means for terminating said
communication when said domain identifier is not included in said list.

10 29. The apparatus of claim 27 wherein said communication comprises a Point-to-Point
Protocol (PPP) session.

30. The apparatus of claim 29 wherein

15 said PPP session comprises a tunneling session;

said determining further comprises means for assigning a tunnel ID; and

said PPP session is forwarded onto a tunnel associated with said tunnel ID when said
subscriber is authorized to access said domain.

20 31. The apparatus of claim 30 wherein said tunneling session comprises an L2TP session.

32. The apparatus of claim 29 wherein said determining further comprises:

means for issuing an authorized domain list request including a virtual circuit
identifier;

25 means for receiving an authorized domain list that includes authorized domains for
said identifier;

means for indicating said domain is unauthorized when said domain name is not in
said domain list;

means for indicating said domain is authorized when said domain name is in said
5 domain list;

means for issuing a tunnel ID request including said domain name when said domain
name is authorized; and

means for receiving a tunnel ID.

10 33. The apparatus of claim 32 wherein

said authorized domain list request is serviced by an AAA server; and
an AAA server services said tunnel ID request.

15 34. The apparatus of claim 32 wherein said virtual circuit identifier comprises a VPI/VCI
identifier.

35. The apparatus of claim 31 wherein said determining further comprises:

means for issuing a tunnel ID request including said domain name and a virtual
circuit identifier; and

20 means for receiving a tunnel ID.

36. The apparatus of claim 35 wherein an AAA server services said tunnel ID request.

25 37. The apparatus of claim 35 wherein said virtual circuit identifier comprises a VPI/VCI
identifier.

38. The apparatus of claim 31 wherein said determining further comprises:

means for performing a table lookup based on a virtual circuit identifier to obtain an

authorized domain list that includes authorized domains for said virtual circuit

5 identifier;

means for indicating said domain is unauthorized when said domain name is not in

said authorized domain list;

means for indicating said domain is authorized when said domain name is in said

authorized domain list; and

10 means for performing a table lookup based on said domain name to obtain a tunnel ID

when said domain name is authorized.

39. The apparatus of claim 38 wherein said virtual circuit identifier comprises a VPI/VCI
identifier.

15 40. An access server capable of forcing subscribers of a communications system to gain
access exclusively to a domain network associated with a virtual circuit, said access
server comprising:

an authorized domain list request generator capable of generating an authorized

20 domain list request including a virtual circuit identifier associated with a virtual

circuit used to accept a PPP session authentication request, said PPP session

authentication request including a domain identifier;

an assessor capable of determining whether said domain identifier is in said domain
list;

a tunnel ID request generator capable of generating a tunnel ID request including said domain identifier; and
an authorizer capable of granting users domain access based upon said authorized domain list.

41. The access server of claim 40, further comprising:

a first receiving interface capable of accepting said PPP session authentication request;
a first forwarding interface capable of sending said authorized domain list request to an AAA server;
a second receiving interface capable of accepting a requested authorized domain list;
a second forwarding interface capable of sending said tunnel ID request to an AAA server;
a third receiving interface capable of accepting a requested tunnel ID; and
a third forwarding interface capable of forwarding said PPP session on a tunneling session associated with said tunnel ID.

42. The access server of claim 40 wherein said tunneling session comprises an L2TP session.

43. The access server of claim 42 wherein said virtual circuit identifier comprises a Virtual Path Identifier (VPI) / Virtual Channel Identifier (VCI).

44. The access server of claim 43 wherein said first receiving interface comprises at least one access multiplexer, each access multiplexer having a plurality of inputs for receiving a service request, each of said inputs being associated with a particular subscriber virtual circuit.

45. The access server of claim 41 wherein said AAA server and said access server communicate using the Remote Authorization Dial-In User Service (RADIUS) protocol.

46. An access server capable of forcing subscribers of a communications system to gain access exclusively to a domain network associated with a virtual circuit, said access server comprising:
a tunnel ID request generator capable of generating a tunnel ID request, said tunnel ID request including a virtual circuit identifier associated with a virtual circuit used to accept a PPP authentication request; and
an authorizer capable of granting users domain access based upon a list of authorized domains for said virtual circuit.

47. The access server of claim 46, further comprising:
a first receiving interface capable of accepting said PPP session authentication request, said PPP session authentication request including a domain identifier;
a first forwarding interface capable of sending said tunnel ID request to an AAA server;

a second receiving interface capable of accepting a requested tunnel ID; and
a second forwarding interface capable of forwarding said PPP session on a tunneling
session associated with said tunnel ID.

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48. The access server of claim 47 wherein said tunneling session comprises an L2TP
session.

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49. The access server of claim 48 wherein said virtual circuit identifier comprises a
Virtual Path Identifier (VPI) / Virtual Channel Identifier (VCI).

50. The access server of claim 46 wherein said first receiving interface comprises at least
one access multiplexer, each access multiplexer having a plurality of inputs for
receiving a service request, each of said inputs being associated with a particular
subscriber virtual circuit.

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51. The access server of claim 47 wherein said AAA server and said access server
communicate using the Remote Authorization Dial-In User Service (RADIUS)
protocol.

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52. An access server capable of forcing subscribers of a communications system to gain
access exclusively to a domain network associated with a virtual circuit, said access
server comprising:

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a memory device capable of storing a domain list table and a tunnel ID table, said
domain list table including a plurality of virtual circuit identifiers and associated

domain identifiers, said tunnel ID table including a plurality of domain names
and associated tunnel IDs;

an authorized domain list determiner capable of determining an authorized domain

5 list based upon said domain list table and a domain identifier within a PPP
authentication request, said PPP authentication request received on a virtual
circuit having a virtual circuit identifier;

an assessor capable of determining whether said domain identifier is in said domain
list;

10 a tunnel ID determiner capable of determining a tunnel ID based upon said tunnel ID
table and said domain identifier; and

an authorizer capable of granting subscribers domain access based upon said
authorized domain list.

15 53. The access server of claim 51, further comprising:

a receiving interface capable of accepting said PPP session authentication request;
and

a forwarding interface capable of forwarding said PPP session on a tunneling session
associated with said tunnel ID.

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54. The access server of claim 53 wherein said tunneling session comprises an L2TP
session.

55. The access server of claim 54 wherein said virtual circuit identifier comprises a Virtual Path Identifier (VPI) / Virtual Channel Identifier (VCI).

- 5 56. The access server of claim 52 wherein said first receiving interface comprises at least one access multiplexer, each access multiplexer having a plurality of inputs for receiving a service request, each of said inputs being associated with a particular subscriber virtual circuit.

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